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guished from molecular attraction. The effect of obstacles, such as the attraction exerted by mediums, by interposed bodies, by the molecular attraction of the molecules themselves, when they arrive both in too great numbers and too rapidly towards the same point, will be the annihilation of the weaker axes; whence will follow the formation of a tangent plane to the spherical or elliptical surface. If the action of the obstacle goes on increasing, axes of attraction, which, by their intensity, had resisted the first obstacles, are destroyed by the new ones; and new tangential planes are produced, in which those that had been first formed finish by being confounded: thus it will happen that, by the increase of obstacles, the surface of the solid from being curved has become polyhedral, and finishes by presenting only an assemblage of a small number of plane faces, separated by edges, and placed tangentially at the extremity of the axes whose forces have longest resisted the action of the obstacles. But since the most energetic axes are necessarily the least numerous, the greater the energy they possess, the number of faces which bound the solid will continually decrease according as the obstacles increase; until, at length, the solid, reduced to its most simple form, no longer presents any but that constituted by the principal axes of crystallization, terminating at the summits of the solid angles of the simple polyhedron, which axes alone have been capable of withstanding the action of all the obstacles opposed to the tendency of the molecules to unite in the form of an ellipsoid.

On this hypothesis, the author explains how common salt, alum, sulphate of iron, &c., crystallize in pure water in the most simple forms, the reciprocal attraction of their molecules being controlled and diminished by the affinity exerted on them by the molecules of the water; whilst if some of these molecules of water are neutralized by mixture with another soluble principle, they cease to act as an obstacle to the crystallization of the body, which then takes forms more complicated and approaching nearer to that of the normal solid with a curved surface.

M. Necker considers that the new views he has sketched require, for their complete developement, many ulterior details, as well as many new experiments and new facts; but that the tendency which the crystals of all systems present, to progress towards the curved surface form appropriate to each system, by the complication of their forces, is a fundamental fact of the first importance; and that an advance has been made by showing the bearing of the important experiments of MM. Leblanc and Beudant, and by having brought the theory of crystallography nearer to those views which the progress of chemistry and of physics have led us to adopt, relative to the form of the elementary molecules of bodies.

January 24, 1839.

FRANCIS BAILY, Esq., V.P., in the Chair.

Charles Darwin, Esq., was elected a Fellow of the Society.

A paper was read, entitled, "Experiments made on a piece of Peña silver, saved from the Lady Charlotte, wrecked on the coast of Ireland in December 1838, as to its capability of holding water." By W. D. Haggard, Esq. Communicated by Sir Henry Ellis, K.H., F.R.S.

Plata Peña, so called, is silver collected by quicksilver after the ore is pounded; it is then placed in a mould, and by great force the quicksilver is squeezed out, when it forms a mass, resembling dry mortar, of great porosity.

	Troy Weight. lbs. oz. dwts.				Decrease in weight. lbs. oz. dwts.		
Original weight when taken from the box	38	10	0				
One day placed before the fire	37	0	15	.....	1	9	5
Third day	35	5	0	.....	1	7	0
Fifth day	34	5	5	.....	0	11	15
Eighth day	34	0	2	.....	0	5	3
Weight of water				.....	4	9	3

					Increase in weight. lbs. oz. dwts.		
Weight of the piece supposed to be quite dry	34	0	2				
First day from the fire	34	0	3	.....	0	0	1
Third day	34	2	5	.....	0	2	2
Fifth day	34	4	2	.....	0	1	17
Eighth day	34	4	9	.....	0	0	7
Gained in water from the air				.....	0	4	7
Weight after water had been forced into it	39	1	19	.....	4	9	10
Total weight of water contained in the piece				.....	5	1	17

A paper was also read, entitled, "On the Application of the Conversion of Chlorates and Nitrates into Chlorides, and of Chlorides into Nitrates, to the determination of several equivalent numbers." By Frederick Penny, Esq. Communicated by H. Hennell, Esq. F.R.S.

The researches which form the subject of this paper were suggested by an inquiry into the most effectual method of ascertaining the quantity of nitrate of potassa existing in crude saltpetre. The author found that by the action of hydrochloric acid the nitrate of potassa was converted into the chloride of potassium; and conversely, that the chloride of potassium might, by the proper regulation of the temperature, be reconverted into the nitrate of potassa by the action of nitric acid. These mutual conversions afforded excellent means of determining, with great exactness, the relative equivalent numbers, in the theory of definite proportions, belonging to these salts, and to their respective constituent elements. The author, accordingly, pursued the investigation of these numbers by several successive steps, of which the details occupy the greater part of the present paper. He first determines the equivalent of chloride of potassium by decomposing chlorate of potassa into oxygen and chlo-